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SOME OBSERVATIONS ON A WHITE-TAILED DEER WINTER RANGE IN IDAHO

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During the last half century lumbering activities and fires have changed the original northern Idaho virgin forests to a checkerboard of second growth, mature timber remnants, and vast brush fields. The latter, apparently a prolonged stage in natural succession to climax forest, as well as some of the mature timber remnants, have become important in many sections as winter range for resident white-tailed deer.

Variations in composition of the browse vegetation, height or size of browse plants, and apparent winter range values of these vegetation types have been observed by various workers, but little actual data have been accumulated. In the watershed of the North Fork of the Coeur d'Alene River and westward to Hayden Lake and the city of Coeur d'Alene browse vegetation apparently is abundant, and white-tailed deer populations are low, but winter deer losses continue to occur. Some attribute these losses to poaching and to scarcity and inaccessibility of good forage due to deep snow.

"To investigate the theory that a scarcity of good forage is largely responsible for the low deer population the composition of one browse vegetation type on an area logged 30 years ago was studied late last year. Thirty 100-foot line transects were established on the selected area and the browse vegetation thereon was observed by means of the line intercept method[1/]. Les Pengelly, Idaho Fish and Game Department Biologist, established the transects and gathered the field data."

1/ Canfield, R. H., Asst. Forest Ecologist, Southwestern Forest and Range Experiment Station. "Sampling ranges by the line interception method," Report No. 4, September 1950.

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Species Encountered

Nineteen plant species were found along the 30 transects. Three were coniferous forest species, and 16 were broad-leaved browse species. Low herbaceous vegetation, largely unavailable to deer during the winter, was not considered in this study.

The average number of species encountered on the transects was 5.7. Since the standard error of this mean was less than one percent of the mean itself, it is evident that the 30 transects adequately sampled species occurrence.

Number and Size of Intercepts

Except in a few cases, a single intercept, i.e., the measured extent of a plant crown along the transect line, was measured and recorded for each plant. It is, therefore, most proper to treat the individual measurements as intercepts rather than plants even though it is felt that the average intercept for each species closely approaches the average size of the plant crowns encountered.

Approximately 25 individual intercepts with 417 inches of intercept length were recorded per transect. Thus, the average transect had 35 percent of its length occupied by browse vegetation. It should be recalled here that these observations were made on a deer winter range where chief concern was with browse vegetation under seven feet in height.

Snowberry was most abundant along the transects. Rose averaged four intercepts per 100-foot line, less than half as many as snowberry. Ninebark was recorded slightly more than three times per transect, and a group composed of oceanspray, syringa, serviceberry, and Mahonia averaged between one and two intercepts per transect. The remaining twelve species were encountered less than once per transect.

As to size or average length of intercept, oceanspray was largest, with Douglas-fir a close second. Five species, syringa, willow, chokecherry, redstem, and mountain maple, averaged between twenty and thirty inches per intercept, and four others, ninebark, alder, ponderosa pine, and white fir, averaged between fifteen and twenty inches. The remaining eight species were all under fifteen inches in average intercept, and four of these were under ten inches.

Composition of Browse Vegetation

Because plant species are of unequal value for browsing or grazing animals, the ratio of each to the others, i.e., composition, is the key to range values. Neither size nor number of intercepts completely tells the story until these values are expressed as a percentage for each species.

More than half of the total browse intercept observed on the 30 transects was occupied by three species, snowberry, ninebark, and oceanspray. Snowberry made up approximately a fourth, ninebark nearly a fifth, and oceanspray about a sixth of the total intercept measured. Three other species each contributed between 5 and 10 percent of the composition, and each of the remaining 13 species contributed less than five percent.

Winter Range Values

Existing palatability or usability tables, especially for browse species used by big game, are based largely on observation and opinion rather than on concrete data. Therefore, the ratings tabulated below are only relative.

Relative palatability ratings of browse species on a white-tailed deer winter range[2/]

Species		Estimate of relative forage value
Technical name	Common name	
Abies grandes	White fir	Very poor
Acer glabrum	Rocky Mountain maple	Good
Alnus sp.	Alder	Poor
Amelanchier alnifolia	Serviceberry	Good
Ceanothus sanguineus	Redstem ceanothus	Very good
Holodiscus dumosus	Oceanspray	Poor
Lonicera sp.	Honeysuckle	Poor
Mahonia repens	Creeping Mahonia	Good
Pachistima myrsinites	Myrtle Pachistima	Good
Philadelphus lewisi	Syringa	Poor
Physocarpus malvaceous	Ninebark	Very poor
Pinus ponderosa	Ponderosa pine	Poor
Prunus demissa	Chokecherry	Good
Pseudotsuga taxifolia	Douglas-fir	Poor
Rosa sp.	Rose	Fair
Rubus sp.	Blackberry	Poor
Salix sp.	Willow	Good
Spirea sp.	Spirea	Fair
Symphoricarpos sp.	Snowberry	Fair

2/ Since no reliable classification has been developed, a tentative palatability scale was prepared by the writer, based on personal observations and on discussions with game specialists.

Some indication of the value of this particular area for wintering white-tailed deer can be gained from this table. Browse species considered as having good or better forage value composed 17 percent of the browse vegetation observed in the sample taken on this range. Fifty-five percent of the estimated composition was made up of three species considered poor, or at best fair, in forage value. Species making up the balance of the browse vegetation were considered to have very little if any forage value.

This information, based on the sampling data, indicates that there is a serious imbalance between good and poor browse species on this winter deer range. In the advent of heavy snows, a common winter occurrence in the area, this could lead to the development of a critical situation for the deer, even with the population at its estimated present low level. As long as the proportion of good forage plants remains low, stocking on this particular winter white-tailed deer range should be closely geared to that portion of the browse vegetation having good or better forage values rather than to the entire browse cover.